

SECTION I

In Section I, the Working Group considers the impact of the increasing number of Agreement States. The Group examines the current materials program and the relationships between NRC and states. The section presents the history, current status, and future challenges of the program. Current models and voluntary organizations are examined with specific details about the contributions of the Conference of Radiation Control Program Directors and Organization of Agreement States. The impact of the increasing number of Agreement States on resources of NRC and Agreement States is estimated.

Relationships Between NRC and States

History, Current Status, and Future Challenges

History, current models, future challenges, and relationships between NRC and states were considered in developing options for a National Materials Program.

In 1959, Section 274 was added to the Atomic Energy Act

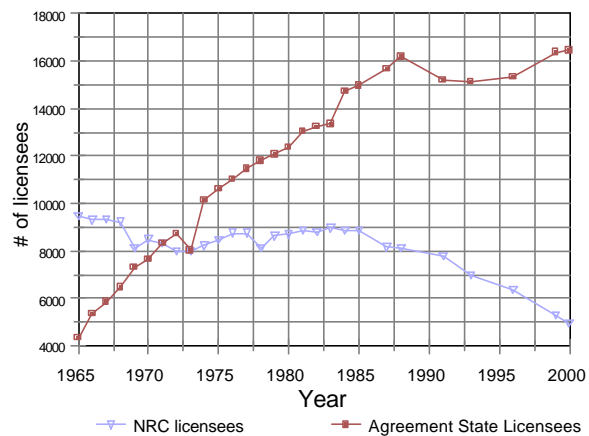
Section 274(g). of the Atomic Energy Act, authorizes and directs the Nuclear Regulatory Commission..."to cooperate with the States in the formulation of standards for protection against hazards of radiation to assure that State and Commission programs for protection against hazards of radiation will be coordinated and compatible."

This was the culmination of early efforts by the U.S. Congress, states, federal officials, and other organizations to coordinate the regulation of radiation.

History

The tradition of cooperative regulation of radioactive materials originated over 40 years ago. Relationships and cooperation between the Atomic Energy Commission (AEC) and the states were formally defined by federal statute when the Atomic Energy Act (AEA) was amended with Section 274. These relationships have evolved over time. Currently, 32 states have signed formal agreements with the Nuclear Regulatory Commission (NRC) or its predecessor, the AEC, and regulate radioactive materials as "Agreement States." The historical progression of state and federal relationships is shown on page 1.3. Figure 1.1 shows the change in the number of NRC and Agreement State licenses over time.

Figure 1.1-Active Materials Licensees



Relationships of Regulatory Programs

NRC and states have a long history of cooperation.

1950s	Relationships and cooperation began between AEC and the states. AEC recognized the need to consult with the states on emerging radiation safety issues. A few states were regulating some radioactive materials prior to the addition of Section 274 to the AEA.
1955	AEC Director of Operations formed an advisory committee of state officials to advise AEC regarding federal/state relations. The committee's work continued for a period of time after enactment of Section 274 and the committee was later disbanded in the mid to late 1960s.
1959	Section 274 was added to the AEA. The purpose of Section 274 was, in part: <ol style="list-style-type: none"> 1. to recognize the interests of the states in the peaceful uses of atomic energy 2. to clarify the respective responsibilities of the states and the Commission under AEA with respect to the regulation of byproduct, source, and special nuclear materials 3. to recognize the need for and establish programs for cooperation between the states and the Commission 4. to promote an orderly regulatory pattern between the states and the Commission 5. to provide a mechanism for discontinuance of certain Commission authority and state assumption of authority for activities involving byproduct, source, and specified quantities of special nuclear material 6. to recognize that additional legislation may be desirable as the states improve their capabilities to effectively regulate such materials 7. to authorize and direct the Commission to cooperate with the states in the formulation of standards for protection against radiation hazards
1962	Kentucky became the first Agreement State and assumed responsibility for regulating AEA material (byproduct, source and specified quantities of special nuclear material) within its borders.
1971	The number of Agreement State licensees exceeded the number of AEC licensees.
1975	The Nuclear Regulatory Commission was formed.
2000	The number of Agreement States grew to 32.

National Materials Program - Current Approaches

Multiple governmental systems perform regulatory functions for the academic, medical, and industrial use of radioactive materials.

Multiple approaches....

- NRC
- Agreement States
- Non-Agreement States
- Other Regulatory Agencies

Through combined authority and resources, this network of organizations addresses the regulation of:

1. radioactive material, including AEA materials, NARM (naturally-occurring or accelerator produced material)
2. radiation produced by machines (x-ray)
3. nonionizing radiation

No national program comprehensively covers the full spectrum of radiation which is regulated for the purposes of health and safety in the United States.

Current Status

Governmental systems that perform regulatory functions in the United States reside in federal and state programs. They are:

1. **NRC** - The federal agency that regulates use of byproduct, source, and special nuclear material in non-Agreement States and U.S. territories, by federal entities, and in areas of exclusive federal jurisdiction.
2. **Agreement States** - State governments that have signed agreements with NRC to regulate AEA material within their respective jurisdictions, with exception of activities exclusive to NRC or those specified in their agreements. The Agreement States also regulate NARM and machine-produced radiation (accelerators and x-ray equipment).
3. **Non-Agreement States** - State governments that have not signed agreements with NRC, but can regulate NARM. Most non-Agreement States also regulate machine-produced radiation.
4. **Other Regulatory Agencies** - The Department of Energy has its own set of standards for sites under its jurisdiction. The Environmental Protection Agency has air and water emissions standards that may differ from NRC rules. The Occupational Safety and Health Administration and the Department of Transportation both have requirements for handling, using, or transporting radioactive material. The Food and Drug Administration regulates mammography and evaluates drugs and devices used in medicine.

Comparison of Three Approaches

NRC, Agreement States, and non-Agreement States have different approaches and responsibilities.

Agreement States

States promulgate rules, policies, and procedures to implement and manage their programs, respond to incidents and events, issue licenses, and conduct inspections.

Most Agreement States conduct sealed source and device evaluations that are documented in NRC's database; however, a few Agreement States have chosen not to perform these evaluations.

Agreement States must maintain programs that are adequate to protect public health and safety.

Byproduct, source, and special nuclear material rules are required to be compatible with NRC rules, as determined during NRC's rulemaking process.

Some Agreement State and NRC program functions must be compatible.

Non-Agreement States

Non-Agreement States can regulate NARM and machine-produced radiation as required by state statutes.

Nuclear Regulatory Commission

NRC exercises regulatory jurisdiction over AEA materials in non-Agreement States. In Agreement States, NRC retains authority over federal agencies, production and utilization facilities, export and import activities, disposal in the oceans, high level waste handling and disposal, transfer of materials to persons exempt from licensing (consumer products), large quantities of special nuclear material, off-shore waters, certain aspects of mill tailings management, and certain activities conducted within some Agreement States, as specified in the respective agreements. NRC also maintains an oversight function for determining adequacy and compatibility of Agreement State programs.

NRC interfaces with federal agencies and Congress about the nationwide materials program.

NRC maintains the lead in establishing priorities and policy for developing rules and standards for the use of AEA material for the nation. NRC responds to incidents and events, issues licenses, conducts sealed source and device evaluations, and conducts inspections of its licensees.

NRC also reviews certain transportation packaging, issues exempt distribution licenses, and maintains national databases for:

- sealed source and device certificates issued by NRC and states
- incidents and events reported by NRC and Agreement State licensees
- certificates of compliance issued for transportation packages

NRC is the primary contact for most incidents and events that cross regional and Agreement State boundaries, and also provides technical assistance to states for event response when needed.

Coordinating Organizations

Conference of Radiation Control Program Directors, Inc., and Organization of Agreement States facilitate coordination of radiation control activities.

The Conference of Radiation Control Program Directors, Inc. (CRCPD), is a voluntary professional organization whose primary membership is made up of individuals in state and local government who regulate the use of radiation sources. Other members include individuals with an interest in radiation protection.



SSRCRs help to establish consistency in radiation rules. Stakeholders have stated that variations in rules between states leads to confusion for the regulated community, particularly for those licensees who have operations in several Agreement and non-Agreement States.

CRCPD was established in 1968 and its membership is open to representatives from all state, local, and federal governments who regulate and control the use of sources of radiation. Individuals, regardless of employer affiliation, who have expressed an interest in radiation protection may join. CRCPD also has international members.

CRCPD is directed by a seven-member Board of Directors, whose membership is elected from state radiation control personnel. Day-to-day operations of the organization are administered by the Executive Director and staff who are employees of the organization.

CRCPD sponsors committees that write and publish Suggested State Regulations for Control of Radiation (SSRCRs), making them available for use by the states. Other CRCPD committees research technical issues, develop guidance documents, and prepare background information for SSRCR committees. A CRCPD committee also reviews applications from states requesting Licensing State status.

SSRCRs provide a tool to aid states in development of rules that are consistent across the nation. Both Agreement and non-Agreement States use SSRCRs published by CRCPD as a guide to writing state rules. These suggested rules include NRC's compatibility determinations. NRC participates with states in the development of SSRCRs for radioactive materials. This effort is consistent with purposes specified in Section 274 of the AEA. Despite the compatibility requirements determined by NRC and the efforts of CRCPD to establish consistency in radiation protection standards nationwide, differences exist due to varying state laws. These differences have **not** led to a decrease in public health and safety.

Coordinating Organizations - cont'd

Conference of Radiation Control Program Directors, Inc., and Organization of Agreement States facilitate coordination of radiation control activities.

Licensing States are those states that have been designated by the CRCPD pursuant to criteria found in Publication 94-8 "CRCPD Recognition of Licensing States for the Regulation and Control of NARM."

Licensing State Status

CRCPD may confer Licensing State status to states. To become a Licensing State, a state promulgates rules and procedures for control of radiation hazards for non-AEA materials that are similar to those rules and procedures used by NRC, other Agreement States, or other Licensing States. Licensing State status assures other states that licensees and/or sources and devices are subject to equivalent licensing practices with respect to discrete sources of NARM, including an adequate quality control program. Vendors in a Licensing State may be granted reciprocal recognition of their license or acceptance of their product. Upon the recommendation of the CRCPD Licensing State committee, CRCPD confers Licensing State status. Currently, no non-Agreement States are recognized as Licensing States. This creates a potential problem because some non-Agreement States allow companies to produce and distribute NARM products to users in other states. In those situations, there is no guarantee that quality assurance programs that control the manufacturing and distribution of such products have been approved by any licensing authority.

Coordinating Organizations - cont'd

Conference of Radiation Control Program Directors, Inc., and Organization of Agreement States facilitate coordination of radiation control activities.



OAS's primary purpose is to provide a forum for Agreement States to work together and with NRC.

Organization of Agreement States (OAS)

OAS is a voluntary organization of individuals from Agreement States. Its primary purpose is to provide a mechanism for Agreement States to work with each other and with NRC on regulatory issues associated with the agreements.

The AEC and Agreement States began holding annual meetings in 1964. In 1971, when states chose to meet separately from AEC for about half a day during these meetings, OAS began to develop. States elected a chairman whose main tasks were to organize the state portion of the meeting and send a letter with recommendations to the Director of the Office of State Programs. The current Executive Board includes the chair, chair-elect, past chair, secretary and secretary-elect. These positions are held by Agreement State representatives.

Prior to the 1990s, NRC set the agenda for these meetings and funded travel costs for Agreement State representatives' attendance. During the 1990s, NRC funding ceased and Agreement States began funding their attendance at the meetings. This change also resulted in the Agreement States taking a more active role in determining the meeting agendas. Today, OAS determines the agenda with input from NRC. The OAS Executive Board and NRC have monthly conference calls during which participants discuss the status of activities of interest. In addition, the OAS Executive Board and the CRCPD Chair brief the Commission annually.

Future Challenges for a National Materials Program

NRC and Agreement States must create a structure to accommodate shifting licensee populations and regulatory expertise.

32 Agreement States are responsible for 75% of the total licensees and by FY 2003 that number is expected to increase to over

The continuing shift in licensee population has implications for both NRC and Agreement State programs.

Changing Status of Agreement State and NRC Programs

At the present time, NRC exercises regulatory responsibility over approximately 5,000 materials licensees, and the 32 Agreement States regulate approximately 16,500 materials licensees. NRC staff expects three additional states to become Agreement States by FY 2003 and estimates that the number of NRC licensees will drop to approximately 4,000. At that time, the Agreement States will be regulating about 17,500 licenses. This continuing shift in licensee population, both in number and type of radioactive material user, has the following implications:

- T the shift in expertise for certain types of licenses from NRC to the states could affect NRC's ability to effectively regulate that technology
- T NRC may find it more difficult to maintain a regulatory infrastructure with a decreasing number of licensees
- T the decreasing number of NRC licensees increases the licensee fee burden
- T increased state experience in regulating AEA and non-AEA sources of radiation is shifting expertise to the Agreement States
- T new technologies are more likely to emerge in an Agreement State than in an NRC-regulated jurisdiction

To develop and maintain the infrastructure of rules and supporting guidance, NRC will need to use a process that reflects this shift.

Resources Budgeted for Materials Regulation

Assumptions were necessary to compare NRC and state resources.

Comparison:

**FTE per 100
specific
licenses**

**States -
2.0 to 3.2 FTE**

NRC - 3.0 FTE

State and NRC resources are compared in terms of FTE per 100 licensees. Resource data in Figure 1.2 on the following page shows a range of program sizes and are reported in:

- # full time equivalent positions (FTE)
- # numbers of specific licensees

NRC and Agreement State Resources

Resources currently budgeted by states and NRC in materials programs were compared using NRC FY 2001 materials budgeted resources. Differences in how NRC and the states prepare and report on budget items, as well as the scope of the programs, required the Working Group to make assumptions in order to compare the number of full time equivalent (FTE) NRC and state positions per 100 licenses.

Assumption: Scope of Programs

Differences in the scope of programs have an impact on resources. Certain assumptions were made in order to compare similar efforts. For example, low-level waste and uranium recovery resources were omitted because they are not common to all states. NRC Site Decommissioning Management Plan resources were omitted because the states do not individually have the legacy of these sites. Also, NRC maintenance of the national infrastructure was not included in the comparison.

The Working Group considered separating resources associated with the regulation of discrete NARM from the materials license totals for the individual states. However, it decided to include NARM totals for these reasons:

1. An infrastructure already exists in terms of licensing/inspection. Therefore, the Working Group concluded that, outside of start-up costs for NRC, regulation of NARM was not a significant resource issue.
2. Agreement States do not differentiate between AEA materials and NARM when licensing and inspecting. The resource implications for licenses with both NARM and AEA materials would be insignificant because the radiological hazards associated are similar.

NOTE: State personnel from Agreement and non-Agreement States indicated that most licensees have both AEA material and NARM. A majority of licensees with only NARM appears to be associated with sealed sources of low activity. For example, New Jersey, a non-Agreement State, has 382 NARM licensees. Approximately 230 of these licensees also have NRC licenses for AEA material. Approximately 100 of the remaining NARM-only licenses authorize the use of sealed sources in x-ray fluorescence and lead paint analyzers that are of minor radiological significance. The remaining approximately 50 licensees would require regulatory attention similar to that for AEA material licensees.

Reference Table

Figure 1.2 - 2001 Resource Data

State/NRC	Specific licenses*	FTE	FTE/100 Specific Licenses
Rhode Island	63	1.9	3.0
Maine	129	2.75	2.1
Colorado	312	6.2	2.0
Georgia	481	11	2.3
Massachusetts	524	17	3.2
Illinois	740	20	2.7
Texas	1480	42	2.8
NRC	5000	149	3.0

* State numbers include specific licenses for NARM.

Notes:

1. Illinois, Colorado, Texas, and NRC resources are approximate and do not include 11.e.(2) byproduct material or low-level radioactive waste programs.
2. Georgia and Illinois resources do not include environmental monitoring and emergency response program costs.
3. Resources do not include corporate overhead (e.g., indirect FTE).

Note that the range in FTE/100 licenses for states and NRC reflect the emphasis or challenges unique to a program, the distribution in the type of materials licensees, and each agency's budgeting process. For example, the Massachusetts program has several staff members assigned to the evaluation of sealed sources and devices due to the concentration of manufacturers in the Commonwealth.

Effects of an Increasing Number of Agreement States on NRC Resources

Currently, NRC must maintain a national materials infrastructure regardless of the number of NRC licensees.

As the number of Agreement States increases, the NRC license base decreases. To evaluate the impact of this change, the Working Group used the NRC FY 2001 budget in the Materials Arena. Because the NRC budget is not organized in terms of those program elements subject to agreements under Section 274, the Working Group eliminated those activities that are not impacted by the agreements (fuel cycle activities and support for spent nuclear fuel) and added resources from the 2001 budget in areas which were determined to be common to NRC and Agreement State materials programs (low-level waste and uranium recovery activities). The Working Group also included resources to maintain the framework for materials regulation and those NRC efforts to support the materials program. The additions are represented in the left column, "Analysis of Impacts Includes:" below.

In order to more accurately predict the manner in which NRC resources would vary under conditions of a changing licensee base, the Working Group divided the NRC resources into two groups, those which can reasonably be expected to change in a linear fashion with the number of licensees and those whose change is more complicated. These directly variable and indirectly variable resources are defined below. This concept was also used when evaluating the resource implications of options in Section III.

Analysis of Impacts Includes:

- decommissioning
- low-level waste
- uranium recovery
- direct support of materials activities, including
 - legal
 - enforcement
 - event assessment
 - investigations
 - research
 - state and tribal programs
- indirect support of materials activities, including
 - financial
 - administrative
 - information technology infrastructure
 - personnel
 - physical plant

Directly Variable Resources and Indirectly Variable Resources

As used in evaluation, ***directly variable resources*** are those NRC resources that change directly as the number of NRC licensees change (e.g., FTE dedicated to licensing, inspection, etc.).

Indirectly variable resources are those NRC resources that are dependent on program or policy *decisions* and are not necessarily directly affected by the number of NRC licensees. Indirectly variable resources also represent regulatory activities particular to NRC's oversight role and implementation of the current materials program.

When both directly and indirectly variable resources are combined, NRC has a total resource of 336 FTE in FY 2001 or 6.7 FTE per 100 licenses. Projected for FY 2004, the total FTE will be 316 or 7.9 per 100 licenses.

Figures 1.3 and 1.4 provide a summary of resources and impacts data.

Reference Tables

Figure 1.3 depicts the current NRC resource structure. Figure 1.4 depicts the projected change in NRC resources for directly and indirectly variable resources under the existing materials program if NRC policies and program activities implementing those policies do not change as the anticipated number of NRC licensees decreases. Decreases in NRC licensees are predicted to result from the addition of three new Agreement States by FY 2004.

Figure 1.3 - Current NRC Resource Structure

Activity	Directly Variable FTE	Indirectly Variable FTE	Total
NMSS, Regions	71	126	197
Direct Support*	27	36	63
Agency Overhead**	0	76	76
Total	98	238	336

* These resources include Office of State and Tribal Programs, Materials Research, Incident Response, Enforcement, Investigations, Legal Advice, and Adjudications.

** These include indirect resources providing policy, financial, administrative, information technology infrastructure, personnel support, and physical plant support.

Figure 1.4 - Impacts of New Agreement States on NRC Resources

	FY 2001	FY 2004***
Number of NRC Licensees	5000	4000
Number of Agreement States	32	35
NRC Indirectly Variable resources (FTE)	238	238
NRC Directly Variable Resources (FTE)	98	78
Total NRC Resources (FTE)	336	316
FTE/100 Licensees	6.7****	7.9****

*** This data was not part of the FY 2002 budget review process, but those resources for FY 2004 will be identified by the respective offices in this year's FY 2003 budget formulation effort.

**** These numbers reflect total resources for the NRC that includes overhead and support resources for the materials program.